

Inventor: Richard Jerome Mathis (3271 Lake Oak Place, Winter Park, Fl 32792)

A combination firefighter tool;

Description

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to firefighter tools and, more particularly, to a fireman's axe, hammer, pry bar, wrenches, and cutting tools. Specifically, the present invention relates to an improved combination of firefighting tools performing the functions of 13 tools previously required. The weight of the firefighter tool is balanced so as to be carried and attached to a firefighters harness in a multitude of ways, thus giving each individual firefighter the advantage of performing his normal tasks with out restrictions.

2. Description of the Prior Art

Firefighters are always confronted with unpredictable situations wherein a number of different types of tools might be required. Firefighters face the problem of making quick and forcible entries into burning structures for search and rescue or making quick exits through walls or doors. They respond to automobile extractions where the first procedure is to disconnect the hood and battery before extricating a person from an automobile accident, and in some cases the windshield needs to be removed or cut to extricate persons from said accident. Unpredictable circumstances are emergency situations with time constraints in performance that can save lives. Gaining entry into buildings/structures often requires a prying action or axe to dislodge doorways and windows. A hammering action is also required for breaking out windows and doors to gain entry. Fire hydrants need to be turned on for hoses that are stretched out and coupled quickly especially if firefighters have or are going into a burning building. Troublesome electrical conduits are sometimes cut or ripped out, at times water needs to be turned on or off

depending, and gas needs to be turned off in buildings for safety reasons. Firefighters are required after a fire response to pull down ceilings and rip out walls of drywall and plaster to inspect or gain access to fire locations and potential fire locations in a structure.

As has been the case of the above, most firefighters find they may need considerably more than just one particular tool and more importantly in an emergency situation, efficiency is a requirement and any delay is often times fatal, this is the choice the firefighter is faced with in making a choice of carrying one or two tools. Since several firefighters are needed to coordinate with each other when leaving a fire truck to bring into a burning structure or automobile accident, an axe, a hammer, pry bar, spanner wrench, a water and gas tool, a hydrant ring, glass cutter, and saws in order to be prepared for any unknown task that may need to be accomplish. Consequently, a number of firefighters have needed to carry a number of different tools each in order to have the proper number and types of tools for each unpredictable incident. Unfortunately, tools that are not being used at a particular time must be set down and are frequently left where they have been used due to it being cumbersome or that they cant be strapped on or put into a pocket. As a result, and as often is the case, tools are left behind and due to circumstances are needed again, they have to be sent for or risk their lives and the lives of those they are trying to save by performing with improper tools and/or time constraints.

Combination firefighter tools have evolved-over the years in order to attempt to alleviate some of the duplication of separate tools discussed. U.S. Pat. Nos. 5,044,033, 6,289,540 B1, 4,727,609, 5,261,164, 6,367,107 B1, 5,315,724, 4,287,623, 3,219,316, 3,599,255, 3,604,028, 4,597,123, and Des. No. D120,609 and No. D233,405 all disclose various fireman combination tools.

Unfortunately, such combination tools have generally been limited in their multiple purposes and have generally been cumbersome to carry, to small to be effective or perform certain functions such as prying with leverage, left after they have been used. While the device disclosed in U.S. Pat. No. 4,287,623 has a plurality of different purposes, its complexity of parts, operation and time possible constraints defeats the purpose of having one sturdy tool at a fire site.

Other utility patents disclosing combination tools, generally in the form of hand axes, includes U.S. Pat. Nos. 89,013, 292,168, 637,253, 790,973, 1,596,602 and 4,030,150 as well as Des. Nos. D35,154, D45,761, 48,231, D67,749, D163,911 D299,414. These remaining patents, both design

and utility, illustrate a variety of combination tools which also attempt to serve a multiplicity of purposes. However, none of the mentioned references disclose a combination fire tool which serves 13 or more multiple purposes so as to avoid the requirement of separate axes, hammers and pry bars as well as other tools. Therefore, there remains a need for a combination fire tool which is not breakable in human hands, simple in design and function, of medium in size not too small to be functional and not too large as to be cumbersome to carry, thus allowing it to be carried without obstructing the normal firefighter tasks when worn.

SUMMARY OF THE INVENTION

Appropriately, it is one object of the present invention to provide a search and rescue, forcible entry, auto extrications, and salvage and overhaul combination firefighting tool.

And accordingly, it is another object of the present invention to provide an improved firefighting tool serving a multiplicity of purposes to permit the requirement of a plurality of tools at any given notice.

Yet another object of the present invention is to provide a firefighter tool as designed for a multipurpose 13 in 1 tool to use, which is versatile and simple, a one solid forged tool and/or the axe/hammer member is welded to elongated handled pry bar making it unbreakable by human hands.

To achieve the foregoing and other objects and in accordance with the purpose of the present invention, as embodied and broadly described herein, a combination firefighter tool is disclosed. The firefighter tool includes an elongated pry bar handle with an axe/hammer member disposed at one end of the handle and a pry bar member disposed at the opposite end of the handle. The axe/hammer member includes a base portion secured to the handle and a convex sharp edge and cutting portions representing the first disposed side of the base. And a flat blunt face with its bottom portion creating a lip that ends in a concave position resting at the second disposed opposite side of the base. The elongated pry bar handle is electrically insulated with rubber tubing and ends in a pry bar, wedge shaped end with a channel slot cut out of its center.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The invention, together with further objects and advantages thereof, may best be understood by reference to the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a side perspective view of a axe/hammer member with elongated handled pry bar as the full embodiment of the presented invention;

FIG. 2 is the top of tool perspective view of axe/hammer member of the tool illustrated in FIG. 1;

FIG. 3 is the back of tool perspective view of axe/hammer member hammer side

FIG. 4 is a side perspective view of an alternate embodiment of the pry bar member of the tool of the present invention;

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to **FIG 1**, a combination emergency search and rescue, forcible entry, auto extrications, and salvage and overhaul firefighting tool comprising of an elongated handle **10** with an electrically insulated rubber grip **11** the length of elongated handle **10** from the bottom of rappelling ring **12** to the pry bar member base portion **13**, the elongated handle **10** having first end representing the axe/hammer member **14** and pry bar representing the second end **15**, with said firefighting tool being approximately 26" in length, 1.5" in handle width with out rubber tubing, 7" at its widest point, and approximately 8 to 9 lbs. in weight.

Referring to **FIG 1**, the axe/hammer member **14** is also represented as the first end and is positioned perpendicular on the base portion of an elongated pry bar handle **16** and comes up both sides of the axe/hammer member **14** creating the chop stop **17** for the axe/hammer head member **14**. A pry bar member represents the position at the opposite or second end **15** of said axe/hammer member **14**.

The said axe/hammer member **14** axe side base portion **18** nestled on elongated handle **10**, constitutes three different cutting positions **19, 20, 21** and a hydrant wrench **22** area on one side of said base portion **18**, the first blade **19** is a convex sharp cutting blade **32** that is extended at its tip and top portion **23** runs downwardly towards elongated pry bar **10**. The second sharp cutting blade position **20** is straight planed and starts at the bottom rounded curved edge **24**, and supports the underside, of the first blade **19**, pointing towards the top middle portion **25** of the Axe/hammer member **14**. The third cutting position **21** is more a beveled blade then the other sharpened blades and starts where the second sharp cutting blade ends **26** and runs towards the base portion of the nesting area for axe/hammer member **18**. A triangle **27** is placed at the beginning of the base portion **18** and nesting area of axe/hammer member **14** creating an open ended wrench appearance and;

Referring to **FIG. 2**, the axe/hammer member **14** thickness from the cutting edge **28**, to the rear side section **29**, which terminates in a relatively broad blunt back face, representing the hammer **30**. The sides of **29** of the back blunt face **30** are substantially tapered from this point until the tapers reaches the side points **31**, respectively, where they taper to a prying or axing point **28**.

The top end portion **25** may be utilized as a light ram for drywall or plaster to remove large areas quickly in order to access a room or investigate fires or burning embers behind walls. The first blade convex axe portion **28** is utilized to cut holes in roofs, floors and walls. Additional uses include chopping wood or soft metals to again gain access to rooms or through doors that are bolted tight. The axe blade **19** has significant additional force when cutting as compared to regular fire axes. As previously discussed, the sharp convex edge **28** of **FIG. 1 and 2**, is particularly useful for cutting aluminum metals and other light weight metals in automobiles and aircraft for aircraft fires.

A first blade/convex axe **19, 28**, rounds at bottom and leads to a strait planed sharpened second cutting blade **20** specifically designed for cutting dry wall and plaster and acts as a guide and leads to the beveled cutting area **21**.

A second blade leads **20** and guides cutting material into the beveled area **21** when third cutting edge **21** performs as a windshield cutter **32** or spreader for auto extrication.

A water hydrant wrench **22** is also included in the combination tool and is formed by means of a triangle **27** that is strategically placed to leave an open ended pentagon aperture water hydrant wrench **22** at the bottom of axe/hammer member **14** axe side base portion **18**, which is the bottom nesting area of handle. The triangle **27** also acts as a guide for the second **20** and third **21** blade cutters, and the aperture is pentagon in shape for it is current standard of water hydrant valves **22**. Favorable results have been found when the aperture is placed slightly forward of the axis of the handle or axe side base portion **18** and in proximity to the top section **25**. This position allows the user to apply a maximum torque to a water hydrant valve by utilizing almost all of the height and weight of the tool as lever arm without sacrificing any strength of the axe/hammer member **14** or the elongated pry bar **10**.

Representative of **FIG. 1 and 2**, a combination firefighting tool said axe/hammer member **14** hammer side base portion **33**, is constituted by a first flat plane **34** starting at the tip and top of axe/hammer member **35** a flat plan **34** that is offset or extended out and runs longitudinally in the directions of the elongated pry bar handle **10**, the plane ends in a rounded edge **36** stopping and starts another plane **37** running inside creating a concave inward arc **38** towards the elongated pry bar handle **10** longitudinally shorter than the first plane **34** creating a lip **36**, at end of lip a concave inward arc **38** is created back to nesting area or hammer side base portion **33**. A rappelling ring **12** is placed at the end of the concaved inward arc **39**.

In operation, the hammer side portion **40** of the tool may be utilized for a variety of purposes. The hammer end **34** is a useful striking tool for hitting locked wood or metal doors, including dead bolts, for breaking glass in windows and to knock down dry wall and wall framing, to gain entry by a firefighter. It may also be used to drive another tool into door jams for entry as well as hitting a surface that requires significant force to move or remove it from its original position.

In its operation from the bottom portion of hammer **36** concaves downwardly **38** and is a spanner wrench area **41** for opening and closing hose couplings including the fire truck coupling/stortz.

The rappelling ring **12** has four major functions, the first function, is to place the rappelling ring **12** to hit the safety mechanism on a fire truck coupling/stortz when spanner wrench **41** is in operation. Second function as its name sake implies, the rappelling ring **12** is used to rappel out of windows in emergency situations by placing the firefighting tool in a 45 degree angle of the window frame. In some instances the firefighter imbeds the axe/hammer member **14** into the wall in the 45 degree angle for added support. The third instance is when firefighters have clipped a d-ring with rope to the rappelling ring **12** and have stood on roof top buildings swinging in arc like fashion the tool to break out window of burning buildings. The fourth function is to place a d-ring on the rappelling ring **12**, and when not in use the d-ring is clipped to the o-ring of the firefighters harness to be carried.

Representative of **FIG. 1 and 2**, a combination firefighting tool comprising an elongated pry bar **10** having first **16** and second ends **13** on handle, the handle is equipped with a rubber tubing **11** for gripping, swinging, and safety precautions. It starts below the rappelling ring **12** and ends at the pry bar member base portion **13**. The elongated pry bar and handle is approximately 26" in length and used for gripping, prying, and swinging the first **14** and second **15** members respectively with a runner tubing for vibration in pounding, and for electrical safety precautions.

The second end of the handle **13** starts a downward concave area that stops at the end point as in **FIG. 1**. Shown in **FIG. 2** the wedge-shaped pry bar member **15**, has sides **42** of the pry bar member **15** that flare outwardly from the diameter of the handle at **13** to a relatively wide lower tip edge **43**. As seen in **FIG. 2**, the thickness of the pry bar member **15** decreases from the diameter of the handle **13** to the edge **43**. A rectangular aperture **44** in the center of the pry bar member **15** creates a channel slot **44** that is 1.5" long.

Representing the pry bar embodiment **15** of the present invention, a channeled slot **044** is formed in-between the pry bar end portion **43**. The channeled slot **44** enables the pry bar end portion **43** to function as a below and above ground gas and water valve shut off member. The channeled slot **44** is tapered so as to enable it as a fit over a variety of different sizes of gas and water valve shut off handles. The channeled slot **44** also enables firefighters to pry the automobile hood latch to open hood and to disconnect the battery terminal.

The concave portion of the pry bar member **15** is utilized for getting behind or in-between wood work such as base boards, door trim, shelves and cabinets. This type of prying action is necessary to investigate for smoldering or hidden fires. The concave tapered member **15** is also used to pry away items from or off walls. It is also useful for prying door hinges and the like, and significant leverage is obtained from the length of the handle **10**. In addition, a more curved modified pry bar **FIG. 4** is used to pull down ceilings of drywall and plaster. To utilize this modified portion **45** of the pry bar member **15**, the pry bar member **15** is then shoved up and through ceilings and walls. The modified version **FIG. 4** is then utilized to pull down the ceilings. In this manner, the firefighter easily punches the pry bar member **15** through ceilings due to the one arm reach capability in operation of the tool. Moreover, the weight is distributed some what evenly in the entirety of invention and assists in pulling down ceiling materials when using the modified form **FIG. 4**.

This combination tool is designed basically as a hand tool and is 26" high and 3" in handled thickness, and 7" at its widest point at the axe/hammer member. The entire tool with the exception of the insulated rubber handle can be manufactured in one piece of forged metal, or manufactured with handle pry bar, axe/hammer member, triangle, and rappelling ring welded together with a stick welded with ratings of 6011 and 6013, or wire welded at .038, and .030. In either, case, the weight and balance lends itself to a tool that can be easily swung and pried with one hand. It should be noted that this combination tool is particularly designed to have the various tools, including the common handle, cooperate with each other. The axe **28** on the front perspective view cooperates with the hammer **40** and prying point on the back side to counter balance the combination tool and thus shares any torque about the longitudinal axis of the handle **10**. The aperture or water hydrant wrench **41** is located to distribute the weight of the axe/hammer member **14** and obtain the desired balance. Moreover, the broad back face **34** and particularly the top edge thereof acts as a pivot for the prying point **37**.

A pry bar member handle **10** partially counter balances both members **14** and **15** and thus makes the tool easier to carry and use and gives the members **14** and **15** maximum leverage arm torque. The rubber handle **11** readily accommodates one and two hands of which the required forces can be applied to the pry bar member **15**. The same observation may be made for the channel slot **44** forming the water, gas, automobile hood release, and battery disconnect.

Significantly, all of these functions can be performed by the firefighter by simply manipulating the single combination tool. It is never necessary for the firefighter to waste valuable time by selecting a new tool for the job. Invaluable time is thus spared during rescue and substantial burden of simply carrying a large number of tools. The significantly lighter and smaller tool load greatly increases the firefighters agility in carrying out his functions.

Prior to the present invention, firefighters have had to carry a variety of tools for; fighting fires, automobile extrications, search and rescue, forcible entry, auto extrications, and salvage and overhaul. Such is the axe, a hammer, a pry bar, hydrant wrench, spanner wrench, water and gas tool, saws for cutting. Each of these tools provided different purposes when a firefighter performed his duties. As can be seen from the above, the present invention combines thirteen of such tool functions into one combination tool, that of an axe, hammer, windshield and dry wall cutter, hydrant and spanner wrench, rappelling ring and fire truck hose (stortz) safety hit, pry bar, water and gas shut off, automobile hood and battery disconnection. Moreover, a thirteen in one tools that is carried by every firefighter by placing a d-ring between the O-ring on the firefighters utility harness and the rappelling ring on the tool, this strategically places the tool at the side of the firefighter when not needed. The thirteen functions all featured into one tool generates a time response for a firefighters reaction time that saves lives in every circumstance they face daily not only for the people they safe but also for the risk they take with there own lives.

Previous to the present invention, firefighters are constantly finding themselves on the scene with the incorrect tools required for fighting fires, automobile extrications, etc. This requires the firefighter to perform the task with the incorrect tool or make unnecessary trips to the fire truck to obtain the right tool. Such delays cause needless damage as well as increased risks to the firefighter, and to the people they rescue. The present invention solves this problem by providing a basic fire fighting tool with all the basic requirements in one multifunctional tool.

Whereas the present inventions description and illustrative embodiments shown in the drawings and described in detail with varying modifications and alternate embodiments. It should be understood, that other and further modifications, apart from those shown in the foregoing

descriptions, that they are exemplary only, and that the scope of the invention is limited only to the claims as interpreted in view of the prior art.